

### Williams (2002)

An archaeological Phase I survey was conducted by Ogden of approximately 1,183 acres east of Redleg Trail (see Figure 9) and Phase II excavations of sites previously identified south and east of the survey area (Williams 2002). A total of 35 sites were identified, including pre-Contact habitation sites, excavated pits, shrines, cairns, and newly identified volcanic glass quarries (termed “chill glass”). The volcanic glass quarries, numbering over 197 individual quarries, were grouped into separate site numbers according to spatial associations between the features. Four of the volcanic glass quarry sites (Sites 21667, 21669, and 21670 and 21671) overlap the eastern portion of AALFTR and AALFTR Extension. Subsurface testing was conducted at Site 18673, located in the current project area. The site was previously recorded by Shapiro *et al.* (1998) prior to the Williams (2002) study. Williams notes the site deposit was thin, except in intact hearths near the entrance, and contained bird bone, gourd fragments, volcanic glass, and charcoal.

### Shapiro *et al.* (1998)

BioSystems conducted an archaeological survey and aerial reconnaissance of a 1,000-m-wide corridor centered on Redleg Trail (see Figure 9) (Shapiro *et al.* 1998). The survey identified ten sites in the corridor, evaluated as pre-Contact Hawaiian sites associated with habitation (lava tubes and C-shape), ceremony or burial, transportation (trail) and quarrying of basalt material. Two of the habitation sites are within the current project area (Sites 18671 and 18673). Site 18671 is a small lava tube shelter with a scant cultural deposit near the light zone. Datable material collected from the light zone and inner chamber of the lava tube produced respective, calibrated date ranges of AD 1630 to 1955 and AD 1478 to 1680. Site 18673 is an extensive lava tube system with several internal features (e.g., hearths, alignments, clearings and rock uprights) denoting sleeping, cooking and ceremonial areas. Abundant cultural material was collected from the site, including hearth ash and charcoal, burned wood, grass matting, gourd pieces, a sling stone or bird cooking, and a volcanic glass “blade”, ‘opihī shells and bird bone. Three charcoal samples collected from three areas of the site produced different calibrated date ranges spanning between AD 1280 and 1680.

### Shapiro and Cleghorn (1998)

BioSystems conducted an archaeological survey of two areas at PTA (Shapiro and Cleghorn 1998). One of the study areas (Work Area 2) included Training Area 5, which overlapped the northeast corner of BAX (see Figure 9). Only one site (Site 19490) was identified in the BAX. Site 19490 is a pre-Contact complex of features (Features A-E), including four lava tubes, two trails, a C-shape, four *ahu* and a surface scatter of volcanic glass flakes. Abundant cultural material was identified in the lava tubes, particularly Feature C, including two *ti* leaf sandals, gourds, burned wooden poles, a hammerstone, vegetable matting, bird and fish bone, ‘opihī shell, *kukui* shell and volcanic glass. Military debris was also noted on the surface of the site. Charcoal from a burned firebrand in Feature C produced a calibrated date range of AD 1640 to 1950. A sample of volcanic glass also collected from Feature C was analyzed as material characteristic of the Pohakuloa Basalt/Glass (Hawaii) chemical group (cf. Jackson and Miksicek 1994).

### Phase I Survey; Roberts *et al.* (2004a)

GANDA conducted a Phase I survey and identification of all sites in the BAX and AALFTR portions of the project area (see Figure 9) (Roberts 2004a). The Phase I work originally identified 24 potential archaeological sites, 15 of which were determined to be archaeological sites during the current Phase II work (see Table 1). All 15 sites are pre-Contact sites attributable to habitation, quarrying, possible bird hunting and travel (trails).

### **Roberts *et al.* (2004b)**

During an archaeological survey on the east side of Redleg Trail (Roberts 2004b), GANDA further documented volcanic quarry sites identified by Williams (2002) and identified four habitation sites and a complex of excavated pits. Four of the quarry sites (Sites 21667, 21669, 21670, 21671) and possible habitation site (Site 21308) lie within the project area. The habitation site (Site 21308) is a rockshelter with three bird bones.

## **4.0 HISTORIC CONTEXT**

For eligibility to the National Register of Historic Places (NRHP), the significance of an historic property can only be evaluated and explained in its historic context. Historic contexts are thematic statements that outline important trends in prehistory and history situated in the place and time of an historic property. They describe one or more aspects of the prehistoric and historic development of an area, they identify the significant patterns that individual historic properties represent, and they link broad description with actual historic properties, that, when grouped, contribute to understanding of the trend.

The historic contexts for cultural resources in the PTA region are derived from the cultural background and previous archaeology of the region described above. Four general context themes are suggested and summarized below.

### **4.4.1 Traditional Hawaiian Occupation (ca. AD 780 to Contact)**

- *Overview:* Native Hawaiian occupation of the PTA region was typified by short-term habitation associated with the procurement of local resources (such as birds and high-quality rock material) or travel through the region, or both activities. Archaeological data suggests occupation of the Saddle was at its peak between the 15<sup>th</sup> to 18<sup>th</sup> centuries and occurred as early as the 8<sup>th</sup> century.
- *Property Types:* Short-term shelters (e.g., small enclosures and cave shelters) near transportation routes and resource centers.
- *Data Needs:* Complete cultural resources inventory; conduct in-depth analysis of cultural deposits to identify chronology of occupation and associated activities, such as resource procurement in Saddle.
- *Significance:* Cultural resources may express important trends (criterion a), such as initial exploration or peak of occupation in the Saddle; or contribute information (criterion d) regarding time periods, associated activities, and/or distribution patterns of occupation in the Saddle.

### **4.4.2 Resource Procurement (Pre-Contact to ca. 1866)**

#### **Bird Hunting (Pre-Contact)**

- *Overview:* Birds, particularly the *ua'u* or Hawaiian Petral, were an important resource in the Saddle Region that was used as subsistence (bird meat) by pre-Contact Hawaiians while occupying the region and as decorative materials for religious and chiefly attire and implements.
- *Property Types:* Natural and modified pits; markers (cairns) near resource areas.
- *Data Needs:* Complete cultural resource inventory of PTA; locate and record anthropogenic pits; conduct in-depth faunal analysis of cultural deposits at sites in region.
- *Significance:* The frequency of cultural resources associated with possible bird hunting may indicate an important trend (criterion a) in late prehistory when an abundance of birds were exploited, possibly to support intensive quarrying at Mauna Kea Adz Quarry Complex. Cultural resources will yield information (criterion d) regarding methods of bird hunting and locations of former habitats.

Volcanic Glass Quarrying (ca. AD 1650)

- *Overview:* Volcanic glass was an important traditional resource in the PTA region that was intensively extracted during the late pre-Contact era (after *ca.* 1650) and likely traded and distributed beyond the local region.
- *Property Types:* Quarries; associated tools (hammerstones); markers (cairns) or shrines near resource areas.
- *Data Needs:* Complete cultural inventory of PTA; locate and record boundaries of quarries; collect and analyze associated tools, such as hammerstones; conduct lithic sourcing of individual quarries for external correlations.
- *Significance:* Collectively, the quarry sites express an important event (criterion a) in the late pre-Contact era when a large amount of volcanic glass was extracted over a brief period of time, likely for trade and distribution beyond the region. The quarries yield important information (criterion d) regarding locations of resource areas, methods of extraction and patterns of identification (sourcing) that could identify routes of trade and distribution of the material outside the Saddle Region.

Timber Procurement (ca. 1815–1866)

- *Overview:* Sandalwood and bark from other native trees were intensively harvested from the uplands of Hawai‘i Island, including possibly the western portion of PTA or western boundary of Kaohe Ahupua‘a.
- *Property Types:* Short-term shelters and isolated hearths near trails or roads and resource areas.
- *Data Needs:* Complete cultural resource inventory of PTA particularly near western boundary.
- *Significance:* Cultural resources may express the event (criterion a) of foreign contact to the Saddle and Mauna Kea region, possibly indicated by the inclusion of Western artifacts at occupation sites; or provide information (criterion d) regarding material culture associated with timber procurement and locations of former native forests.

**4.4.3 Livestock Industry (ca. 1793 – Present)**Bullock Hunting (ca. 1800s)

- *Overview:* After the introduction of cattle to the Hawaiian Islands in 1793, Kamehameha I hired foreign bullock hunters (ca. 1818) to shoot cattle and prepare the meat to supply foreign ships frequenting Kawaihae Harbor. By 1837, over 60 bullock hunters were reportedly operating in the region (Bergin 2004:28).
- *Property Types:* Short-term shelters and isolated hearths near trails or roads; traps (such as pits) and corrals.
- *Significance:* Cultural resources may express the event (criterion a) of foreign contact to the PTA region, such as the inclusion of Western artifacts at occupation sites; or yield information (criterion d) regarding methods of bullock hunting and tools associated with the activity.

Sheep Farming (ca. 1850s – 1970)

- *Overview:* Sheep farming was developed in the eastern region of the Saddle under the WGAC and later Humu‘ulu Sheep Station. Although the sheep range was generally limited to the vicinity of the stations outside PTA (e.g., Kala‘i’ehu), sheep were often herded along the historic road (also known as Humu‘ulu Road) between Waimea and Kala‘i’ehu – a route in proximity to the current Saddle Road.
- *Property Types:* Animal pens, boundary walls, irrigation structures, such as troughs, and paniolo encampments.

- *Data Needs:* Complete cultural resource inventory particularly in vicinity of former Waimea to Hilo road; conduct ethnographic and archival research.
- *Significance:* Cultural resources may express trends (criterion a) in the development of sheep farming in the Hawaiian Islands, or yield important information (criterion d) regarding activities, tools and individuals associated with sheep farming.

Cattle Ranching (ca. 1900 - 1970)

- *Overview:* In conjunction with sheep farming, Parker Ranch began pasturing cattle in the northeastern portion of the Humu‘ulu Sheep Station, where water was more readily available.
- *Property Types:* Corrals, paddock fencing, herding chutes, and irrigation structures, such as water tanks, troughs and irrigation piping. Travel routes, including horse and foot trails, wagon and vehicular roads established between paddocks and ranch facilities.
- *Significance:* Cultural resources may express trends (criteria a) in the development of large-scale cattle ranching in the Hawaiian Islands, or yield important information (criteria d) regarding cattle ranching activities and materials associated with the activity.

**4.4.4 Government Undertakings (Post-Contact)**

Hawaiian Kingdom Road Construction (ca. mid to late 1800s)

- *Overview:* As a result of social and economic pressures of foreign contact, the Hawaiian Kingdom directed curbed horse trails and horse-drawn cart roads be constructed to replace the native footpaths (Maly and Maly 2002:116). A government road was built between Waimea and Hilo during the mid to late 19<sup>th</sup> Century, a portion of which crossed the Saddle near the current Saddle Road.
- *Property Types:* curbed horse trails and cart roads, bridges, culverts, short-term encampments, evidence of quarrying and rock stockpiling.
- *Data Needs:* Complete cultural resource inventory particularly in vicinity of former Waimea to Hilo road; conduct ethnographic and archival research.
- *Significance:* Cultural resources may express important trends (criteria a) in the development of transportation routes, such as the shift from foot paths to cart roads and later motor vehicle roads, or yield important information (criteria d) regarding the locations of post-Contact travel routes and methods and materials used in the road construction.

U.S. Military (1941-present)

- *Overview:* The U.S. military established an encampment (Camp Pohakuloa) during WWII and began training maneuvers at PTA. The current Saddle Road was constructed in 1943 to allow U.S. troops to move into the interior in case of a subsequent attack (Langlas *et al.* 1998:55).
- *Properties:* WWII era military training and facility structures, military debris, Saddle Road, quarried and stockpiled road materials.
- *Data Needs:* Complete cultural resource inventory of cantonment area; conduct ethnographic and archival research.
- *Significance:* Cultural resources may yield information (criteria d) regarding WWII-era methods of training and road construction.

## 5.0 FIELD METHODS

Intensive archaeological survey of the three study areas focused on data collection necessary to evaluate site significance and to determine mitigation treatments for significant cultural resources. Tasks included preparation of detailed site descriptions, drawing of scaled and gps-generated site maps, limited excavations (where possible) and photographic documentation.

Due to the presence of unexploded ordnance in the various study areas, the field crew was accompanied by a team of UXO specialists from Donaldson Enterprises, Inc (DEI) during all field activities. Prior to subsurface testing, the ground was tested for buried UXO with a magnetometer.

All aspects of the fieldwork, including schedule, personnel, archaeological findings and evaluations, were documented in a daily log. Sites were thoroughly recorded on site and feature record forms specifically designed for PTA. Most of the newly recorded sites were mapped to scale using a meter tape and declinatated compass. Scale maps were created for a representative number of features at the excavated pit complexes (Sites 23621, 23463, and 23622). All of the volcanic glass quarries were mapped using a gps and are displayed on GIS maps included in this report. Scale maps of representative features in Site 23455 were completed during a previous study (See Appendix C in Roberts et al. 2004b). Digital and 35mm photographs were taken of all the sites.

Test units were excavated at several sites to assess the nature and depth of cultural deposits and to collect datable samples for radiocarbon dating. The test units were excavated by natural soil layers, within 10-cm arbitrary levels. Excavated materials were screened through 1/8-inch mesh. Subsurface cultural features were fully exposed, drawn to scale, bisected if necessary, and profiled. At least two walls were profiled of each excavation unit and descriptions of soils and sediments were recorded following U.S. Soil Conservation Service standards and munsell color notations. Photographs were taken of all subsurface features, profiles, and plan views.

## 6.0 RESULTS

The following section provides descriptions, testing results and radiocarbon information (if applicable) for the 24 sites currently documented in the project area (Figures 10 and 11; see Table 3).

All 24 sites are classified as pre-Contact Hawaiian sites attributable to short-term habitation, possible bird hunting, quarrying, and transportation. All cultural material collected from the sites are tabulated and provided in the Laboratory Analysis Section 7.0 of this report. Sites are presented below by individual study areas (BAX, AALFTR, and AALFTR Extension) and organized – in numerical order – by their State site number, prefaced by 50-10-31. Each description contains a header table providing a brief summary of the site including possible significance evaluations according to NRHP criteria defined in Section 9.0 of this report.